



### Overview

Although diagnosis of HIV infection is not a direct measure of disease incidence, recent trends in the distribution of HIV infection diagnoses are the best available indicators for who is most at risk of HIV infection. While the distribution of HIV infection diagnoses across gender and race/ethnicity has remained fairly steady in the past five years, there has been a shift in race/ethnicity among females. From 1999 to 2005, the proportion of females diagnosed with HIV infection who are black (non-Hispanic) increased from 40% to 55%, while the proportion of white (non-Hispanic) females decreased from 30% to 16%.

Recently, there has also been a shift in the distribution of HIV infection diagnoses by place of birth. From 1999 to 2005, the proportion of HIV infection diagnoses in people born outside the US increased from 18% to 30%; among females 28% to 50%. Among black (non-Hispanic) females diagnosed with HIV infection within the years 2003 to 2005, 64% were born outside the US compared to 12% of white (non-Hispanic) females and 25% of Hispanic females.

Changes have also occurred in the distribution of HIV infection diagnoses by exposure mode. The proportion of all HIV infection diagnoses with male-to-male sex as an exposure mode increased from 28% in 1999 to 39% in 2005. Among males, the proportion of HIV infection diagnoses with male-to-male sex as the reported exposure mode increased from 41% in 1999 to 53% in 2005. The proportion of cases with injection drug use as the reported exposure mode decreased from 30% in 1999 to 14% in 2005. While caution should be used in interpretation, it is notable that jurisdictions across the nation have seen a similar decline in the incidence of HIV infection diagnosis among injection drug users.

The following analyses depict trends in HIV infection diagnosis and describe populations at risk of HIV infection in Massachusetts in greater detail.

### Trends in HIV Infection Diagnoses from 1999 to 2005

#### General Statistics

- Of all people diagnosed and reported with HIV/AIDS in Massachusetts, 20,379 were diagnosed with HIV infection before 1999, 1,325 were diagnosed with HIV infection in 1999, 1,164 in 2000, 1,003 in 2001, 1,064 in 2002, 933 in 2003, and 943 in 2004. As of July 1, 2006, 806 HIV infections were reported for 2005. This number will continue to increase as additional cases are reported throughout the rest of the year, likely resulting in a maintained plateau in the number of HIV infection diagnoses over the past three-years. A similar number (N=840) of cases had been reported for 2004 at this time last year.

#### Gender

- From 1999 to 2004, the distribution of people diagnosed with HIV infection by gender was 68% to 70% male and 30% to 32% female. In 2005, males accounted for a larger (74%) and females a smaller (26%) proportion of HIV infection diagnoses than in earlier years.

#### Race/Ethnicity

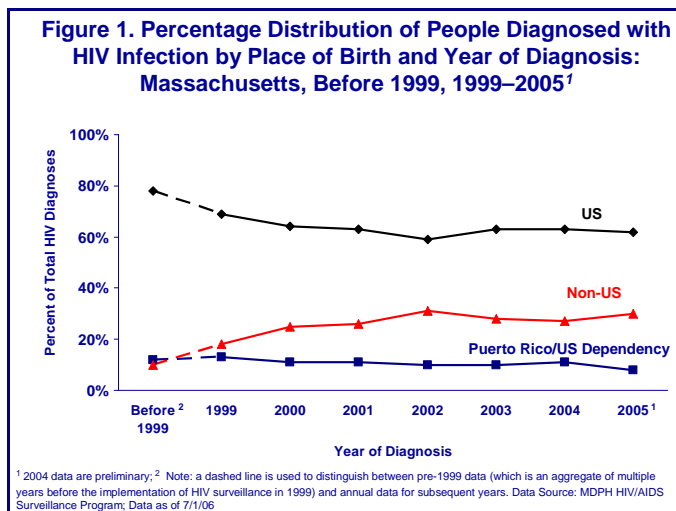
- Compared to people diagnosed with HIV infection before 1999, black (non-Hispanic) individuals and Hispanic individuals represent a larger proportion of reported cases among people diagnosed from 1999 to 2005.
- From 1999 to 2005, the proportion of HIV infection diagnoses that were among white (non-Hispanic) individuals ranged from 38% to 42%, black (non-Hispanic) individuals from 30% to 34% and Hispanic individuals from 23% to 27% in each of these years.

## Gender and Race/Ethnicity

- In the years 1999 through 2005, the proportion of HIV infection diagnoses that were among white (non-Hispanic) **males** ranged from 45% to 49%, black (non-Hispanic) **males** from 25% to 28% and Hispanic **males** from 23% to 25% in each of these years.
- Among **females** diagnosed with HIV infection in the years 1999 through 2005, the proportion of black (non-Hispanic) females increased from 40% to 55%, while the proportion of white (non-Hispanic) females decreased from 30% to 16%; the proportion of Hispanic females ranged from 27% to 31%.

## Place of Birth and Gender

- From 1999 to 2005, the proportion of people born outside the U.S. among those with HIV infection increased from 18% to 30%.



- From 1999 to 2005, the proportion of **males** diagnosed with HIV infection born outside the US (or Puerto Rico and other US dependencies) increased from 14% to 23%.
- During the same time period, the proportion of **females** diagnosed with HIV infection and born outside the US (or Puerto Rico and other US dependencies) increased from 28% to 50%.

## Exposure Mode and Gender

- Among **males** diagnosed with HIV infection, the proportion of diagnoses with male-to-male sex as the primary reported exposure mode increased from 41% in 1999 to 53% in 2005.
- The proportion of HIV exposures among **males** attributed to injection drug use (14%) has decreased from prior years.
- From 1999 to 2005, the proportion of HIV infection diagnoses in **females** presumed exposed to HIV through heterosexual sex with a partner or partners of unknown risk and HIV status (presumed heterosexual) increased from 32% to 45%.
- Among **females** diagnosed with HIV infection, the proportion with injection drug use as the reported exposure mode decreased from 30% in 1999 to 12% in 2005.

(Note: Caution should be used in interpreting large increases or decreases from one year to the next. Reporting artifacts, such as underreporting of certain risk categories, may account for some of these differences, particularly in more recent years.)

## Age at HIV Infection Diagnosis

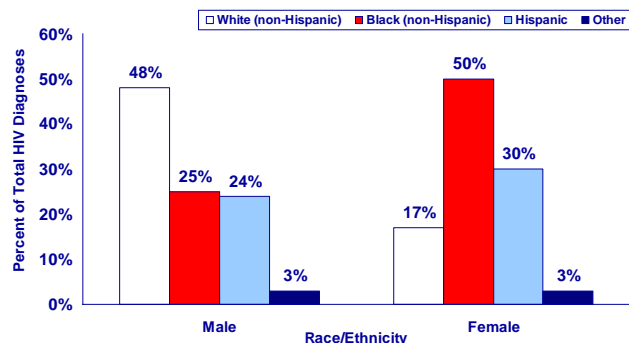
- In 2005, less than 1% of people diagnosed with HIV infection were under 13 years old, 7% were 13-24 years old, 11% were 25-29 years old, 15% were 30-34 years old, 17% were 35-39 years old, 20% were 40-44 years old, 16% were 45-49 years old, and 14% were 50 years old or older.
- Eleven percent of females diagnosed with HIV infection in 2005 were 13 to 24 years old, compared to 6% of males.

## A Profile of People Recently Diagnosed with HIV Infection: Race/Ethnicity and Gender

- The distribution of race/ethnicity among persons with HIV infection is different in males and females diagnosed within the years 2003 to 2005. While 48% of **males** diagnosed with HIV infection within the years 2003 to 2005 are white (non-Hispanic), 50% of **females**

diagnosed during this time period are black (non-Hispanic).

**Figure 2. People Diagnosed with HIV Infection Within the Years 2003–2005 by Gender and Race/Ethnicity: Massachusetts**

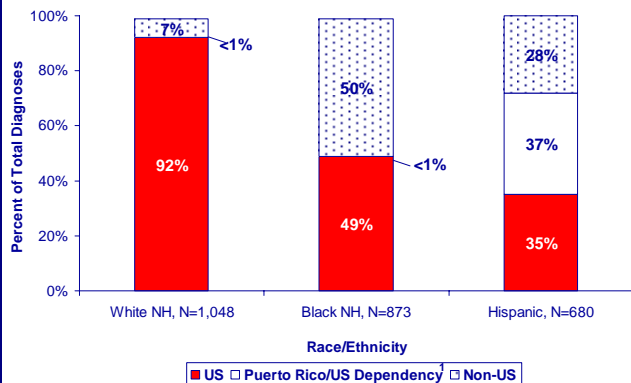


Data Source: MDPH HIV/AIDS Surveillance Program, Data as of 7/1/06

### Race/Ethnicity and Place of Birth

- Fifty percent of black (non-Hispanic) individuals diagnosed with HIV infection within the three-year period 2003 to 2005 were born outside the US, compared to 28% of Hispanic individuals and 7% of white (non-Hispanic) individuals.

**Figure 3. People Diagnosed with HIV Infection Within the Years 2003–2005 by Race/Ethnicity and Place of Birth: Massachusetts**



<sup>1</sup> 94% of people diagnosed with HIV infection from 2002-2004 that were born in a US Dependency were born in Puerto Rico; NH=Non-Hispanic; Data Source: MDPH HIV/AIDS Surveillance Program, Data as of 7/1/06

- The majority of non-US-born black (non-Hispanic) individuals diagnosed with HIV infection within the three-year period 2003 to 2005 are from Sub-Saharan Africa and the Caribbean, while the majority of non-US-born Hispanic individuals and white (non-Hispanic) individuals are from Central and South America.

### Race/Ethnicity, Place of Birth and Gender

- Forty-three percent of females diagnosed with HIV infection within the three-year period 2003 to 2005 were born outside the US compared to 22% of males. Among black (non-Hispanic) **females** with HIV infection, the proportion born outside the US is 64% compared to 25% of Hispanic females and 12% of white (non-Hispanic) females. Among black (non-Hispanic) **males**, the proportion is 39% compared to 29% of Hispanic males and 7% of white (non-Hispanic) males.

### Race/Ethnicity and Exposure Mode

- While the predominant mode of exposure among white (non-Hispanic) individuals diagnosed with HIV infection within 2003 to 2005 is male-to-male sex (59%), the predominant mode of exposure among black (non-Hispanic) individuals is presumed heterosexual sex with partners with unknown risk and HIV status (presumed heterosexual, 41%). Among Hispanic individuals, injection drug use accounts for 24%, presumed exposure through heterosexual sex 22%, and male-to-male sex 21% of reported exposures to HIV infection.

### Race/Ethnicity, Exposure Mode and Gender

- Exposure mode among people diagnosed with HIV infection within the three-year period 2003 to 2005 varies by race/ethnicity among both males and females.
- Among **white (non-Hispanic) males**, male-to-male sex is the predominant exposure mode, accounting for 68% of reported exposures.
- Among **black (non-Hispanic) males**, presumed heterosexual sex with partners with unknown risk and HIV status (presumed heterosexual) accounts for 29%, male-to-male sex 27% and injection drug use 12% of reported exposures.
- Among **Hispanic males**, exposure mode is also more evenly distributed with male-to-male sex accounting for 32% and injection drug use 27% of exposures.

For detailed data tables and technical notes please see Appendix

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- While the predominant reported mode of exposure among **white (non-Hispanic) females** diagnosed with HIV infection within the years 2003 to 2005 is injection drug use (38%), the predominant exposure mode among **black (non-Hispanic) females** is presumed heterosexual sex with partners with unknown risk and HIV status (presumed heterosexual) (56%). Among **Hispanic females** exposure mode is more evenly distributed with presumed heterosexual sex with partners with unknown risk and HIV status (presumed heterosexual) accounting for 36%, heterosexual sex (with partners with known risk and HIV status) accounting for 32% and injection drug use 17% of exposures.

#### **Distribution by Gender and Health Service Region (HSR)**

- The Southeast, Boston, and Metro West regions have the highest proportion of males among those with HIV infection diagnosed within the three-year period 2003 to 2005 at 76%, 75% and 74%, respectively.
- The Central, Western, and Northeast regions have the highest proportion of females among people diagnosed with HIV infection within the three-year period 2003 to 2005 at 40%, 37% and 35%, respectively.

#### **Distribution by Race/Ethnicity and Health Service Region (HSR)**

- While white (non-Hispanic) individuals constitute the largest proportion of people recently diagnosed with HIV infection in the Southeast (60%), Metro West (47%), Central (41%) and Northeast (35%) regions, Hispanic individuals are the largest proportion in the Western region (50%) and black (non-Hispanic) individuals the largest proportion in the Boston region (40%).
- While numbers are relatively small, the proportion of recent HIV infection diagnoses that are made in Asian/Pacific Islanders in the Northeast region (4%) is at least double that of all other regions.

#### **Distribution by Exposure Mode and Health Service Region (HSR)**

- Male-to-male sex is the predominant exposure mode for people diagnosed with HIV infection in the Boston (45%), Metro West (36%) and Southeast (40%) regions within the years 2003 to 2005.
- In the Western region, exposure mode is more evenly distributed with injection drug use accounting for 24%, male-to-male sex 21%, presumed exposure through heterosexual sex with partners with unknown risk and HIV status in 21%, and heterosexual sex (with partners with known risk and HIV status) in 18% of reported exposures to HIV infection.
- In the Central region, presumed exposure through heterosexual sex with partners with unknown risk and HIV status is reported in 27% of exposures to HIV infection, injection drug use in 24% and male-to-male sex in 23%.
- In the Northeast region, male-to-male sex accounts for 28%, presumed exposure through heterosexual sex with partners with unknown risk and HIV status 26%, and injection drug use 13% of reported exposures to HIV infection.

#### **People at Risk of HIV Infection**

##### **State-funded HIV Counseling and Testing**

- In 2005, 44,960 HIV tests were performed at publicly-funded HIV counseling and testing (C&T) sites, of which 1.0% (N=430) were positive.
- In 2005, more HIV tests were performed for males (65%, N=29,082) than females (35%, N=15,573) at publicly-funded sites.
- The majority of HIV tests were performed for white (non-Hispanic) clients (43%, N=19,224) followed by Latino\* (26%, N=11,480) and African-American\* clients (19%, N=8,331).
- While 29% of positive HIV tests were in African-Americans\*, they accounted for only 19% of all tests conducted.

For detailed data tables and technical notes please see Appendix

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- Latinos\* accounted for 28% of positive HIV tests and 26% of all tests conducted.
- White (non-Hispanic) clients accounted for 28% of positive HIV tests and 43% of all tests conducted.
- By race/ethnicity, the highest percentages of positive HIV tests were in Haitians\* at 2.3%, African-Americans\* at 1.5% and Brazilians\* at 1.5%.
- While people ages 20-24 years old (22%, N=9,797) account for the largest number of total tests across age categories, the percent of positive tests in this age group is low (0.4%).
- The highest percentage of positive HIV tests was among clients reporting both male-to-male sex and injection drug use as their risk (3.8%) followed by male-to-male sex only (3.1%).

\* Racial/ethnic categories collected for counseling and testing data differ from those collected for the HIV/AIDS surveillance data presented elsewhere in this report

## Behavioral Risk for HIV Infection

### Number of Sexual Partners

- Among 5,116 respondents to the 2004 and 2005 Massachusetts Behavioral Risk Factor Surveillance System (BRFSS) survey, ages 18-64 years, 10% reported two or more sexual partners, 75% reported one partner, and 15% reported no sexual partners in the past year.
- The largest proportions of people reporting two or more partners were young (29% of 18-24 year olds reported two or more partners), were men (14% of men reported two or more partners compared to 6% of women), and were black (non-Hispanic) or Hispanic (20% of black individuals and 17% of Hispanic individuals reported two or more partners compared to 8% of white (non-Hispanic) and Asian individuals).
- Forty-four percent of **males** who had sex with same sex partners reported two or more sexual partners compared to 14% of males who had sex with opposite sex partners.

- Forty-two percent of **males** ages 18-24 years reported two or more sexual partners compared to 13% of males ages 25-34, 12% of males ages 35-44, and 6% of males ages 45-64.
- Eighteen percent of **females** ages 18-24 years reported two or more sexual partners compared to 6% of females ages 25-34, 3% of females ages 35-44, and 1% of females ages 45-64.

### Condom Use:

- Of 4,052 sexually active respondents to the 2004 and 2005 BRFSS ages 18-64 years, 25% reported using a condom at last sexual encounter (26% of male respondents and 23% of female respondents).
- Thirty-eight percent of Hispanic and 40% of black (non-Hispanic) respondents reported condom use at last sexual encounter, compared to 22% of white (non-Hispanic) individuals.
- Sixty-four percent of those reporting 3 or more sexual partners also reported condom use at last sexual encounter, compared to 54% of those reporting 2 partners and 20% of those reporting one partner.
- Of men reporting a same-sex partner, 52% reported condom use at last sex, while 25% of men with opposite-sex partners reported condom use at last sexual encounter.

### Data Sources:

HIV/AIDS Case Data: Massachusetts Department of Public Health, HIV/AIDS Surveillance Program, all data as of 7/1/06

Counseling and Testing Data: Massachusetts Department of Public Health, HIV/AIDS Bureau, Office of Research and Evaluation

BRFSS Data: Massachusetts Department of Public Health, Bureau of Health Statistics, Research and Evaluation, Behavioral Risk Factor Surveillance System

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